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CONTRIBUTIONS FROM THE SOLAR OBSERVATORY
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THE FIVE-FOOT SPECTROHELIOGRAPH OF THE SOLAR
OBSERVATORY

BY

GEORGE E. HALE AND FERDINAND ELLERMAN

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In a recent paper¹ we have described the spectroheliograph designed for use with the 40-inch Yerkes refractor. As stated in this paper, the most satisfactory form of spectroheliograph is that in which the instrument is moved as a whole, while the image of the Sun and the photographic plate are stationary. The first spectroheliograph of this type was constructed in 1893, from Mr. Hale's general design, by Toepfer, of Potsdam, and employed in some attempts to photograph the solar corona without an eclipse, from the summit of Mount Etna.² In the case of the Rumford spectroheliograph, it was necessary to produce the motion of the Sun's image across the first slit by driving the telescope tube at a uniform rate in declination, the photographic plate being moved at the same time across the second slit. From a mechanical point of view, such an instrument is not an entirely satisfactory one, but the Rumford spectroheliograph has nevertheless given good photographs, some of which are reproduced in our paper.

As soon as arrangements had been made to erect the Snow telescope on Mount Wilson, it became possible to design, for use with it, a spectroheliograph of the type employed on Mount Etna. We were fortunate in having the assistance of Professor Ritchey and Mr. Pease, whose skill in working out the details of construction has been demonstrated by the very satisfactory operation of the instrument.

A photograph of the spectroheliograph, mounted for use with the Snow telescope, is reproduced in Plate XI. A better idea of the general design may be obtained from Plate XII, which shows the spectroheliograph in our instrument shop before it was completed. It consists essentially of a massive cast-iron base, bearing four short A-rails at its four corners, on which the moving part of the instrument

¹ "The Rumford Spectroheliograph of the Yerkes Observatory," *Publications of the Yerkes Observatory*, 3, Part 1.

² *Astronomy and Astro-Physics*, 13, 662, 1894.